



California Water and Environmental Modeling Forum

Promoting Excellence and Consensus in Water and Environmental Modeling

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October 17, 2003

Kamyar Guivetchi, Manager
Statewide Water Planning
California Department of Water Resources
Division of Planning and Local Assistance
901 "P" Street, 2nd Floor
Sacramento, CA 95812

Subject: CWEMF Comments on the California Water Plan Analytical Tools Workplan

Dear Mr. Guivetchi:

Thank you for briefing the California Water and Environmental Modeling Forum (CWEMF) on the California Water Plan (CWP) Analytical Tools Workplan at the September 25, 2003 CWP Analytical Tools Workshop. The CWEMF appreciates the opportunity to comment on the CWP Workplan. At the Workshop, you stated that (1) comments on the Workplan should be submitted by October 17, 2003 to be included into the November 1, 2003 draft of CWP Update 2003 and (2) the final CWP Update 2003 would be released to the public in late December 2003.

As you know, the CWEMF is a non-profit, non-partisan organization whose mission is to increase the usefulness of models for analyzing California's water-related problems (CWEMF, October 2003). Enclosure 1 provides some additional information about the CWEMF. Since the CWEMF's mission is so closely aligned with the focus of the CWP analytical tools work, the CWEMF would like to actively participate in the CWP process if an effective and productive arrangement could be identified. The CWEMF's comments on the Workplan and suggestions on how the CWEMF could participate in the CWP analytical tools process are as follows:

1. General—The CWEMF believes that the general approach of the Workplan is good and that the process is necessary. The Workplan should include more information about the modeling problem(s) and objective(s). In addition, the CWP should describe the scope or "footprint" of the CWP modeling work that is needed, the needed temporal and spatial scales, the scale limitations in terms of management and regulatory actions, and the model hierarchy. The CWEMF could work with the CWP staff and the CWP Modeling Workgroup (Workgroup) to help develop this information. It might be useful to cite some examples of where models were used in large-scale studies. Some of these examples are as follows:

- CALFED's February 2002 Proposed Water Management Actions Draft Report, Appendix A, Model Descriptions (CALFED, 2002);

- U.S. Bureau of Reclamation's April 1994 Central Valley Project Improvement Act (CVPIA) Analytical Tools Report¹ (USBR, 1994);
- U.C. Davis' Statewide Economic-Engineering Water Model – CALVIN Report (Lund, Howitt and Jenkins, 2003); and
- CALFED's July 2000 Comprehensive Monitoring, Assessment and Research Program (CMARP) Report, especially Chapter IV, Parts B, C, F, G and H (CALFED, 2000).

2. CWP Modeling Committee—The CWEMF is interested in developing an ongoing structural relationship with the CWP staff and Workgroup. To develop and maintain that relationship, the CWEMF could form a CWP Modeling Committee that would maintain regular contact with your staff and the Workgroup.

3. Technical Workshops—The CWEMF CWP Modeling Committee could work with your staff and the Workgroup to address CWP modeling-related issues in CWEMF technical workshops. The technical workshops could assist the CWP process by doing the following:

- Informing the CWP community about previous large-scale modeling efforts (such as CALFED and CVPIA) and how these efforts could help the CWP analytical tools work;
- Informing the CWP community about existing and new models;
- Providing a forum to collaboratively develop Guiding Principles for developing and using models and databases;
- Training the CWP community on how to use existing and new models, including how to interpret model results; and
- Training the CWP community on how to implement the Guiding Principles.

4. Model User Groups—Developing new models or revising existing models needed to evaluate the CWP's scenarios over the near- and long-term will require significant resources and coordinated communication. To expedite this process, the CWEMF suggest developing "Model Users Groups" that will use "Shared Vision Modeling"² techniques to collaboratively design, develop, evaluate, enhance and use the CWP models. The CWEMF has recently established an IGSM2 (groundwater) Model User Group, albeit with a limited scope. The CWEMF is awaiting the outcome of a proposal submitted to the Bay-Delta Science Consortium to form and facilitate two interagency Model User Groups: (1) an expanded IGSM2 Model User Group and (2) a CALSIM II Model User Group (CWEMF, July 2003). Other Model User Groups that could be formed include those dealing with hydrodynamics, biology, water quality and economics.

5. Analytical Tools Glossary—The CWEMF believes that clear and precise definitions of terms are important to the CWP process. As such, the CWEMF CWP Modeling Committee could assist in developing a comprehensive CWP Analytical Tools Glossary.

6. Guiding Principles—The CWEMF CWP Modeling Committee could work with your staff and the Workgroup to augment the Guiding Principles for developing and using models and

¹ While some of the information in the CVPIA Analytical Tools Report is dated, most of the information is relevant and useful.

² "Shared vision modeling" is the common development and use of a model or set of models by a group of diverse stakeholders and/or decision-makers. The fundamental concept is that those affected by water resource modeling should be provided the opportunity to participate in model design, development, evaluation, enhancement and use (Lund and Palmer, 1998).

databases. These Guiding Principles are similar to the “Protocols for Water and Environmental Modeling” (Modeling Protocols) developed by the CWEMF (CWEMF, 2000). One of the protocols discussed in the Modeling Protocols Report is peer review. The CWEMF believes that all models require some level of peer review to assure that they are properly used. The extent of a model’s peer review can range from a full-blown independent peer review to a small public meeting to review the model depending on the complexity and importance of the model. An augmentation to the Guiding Principles might be that model development should include a percentage of the total development costs for documentation and peer review.

7. Schedule—The CWEMF agrees that “[g]enerating and interpreting the [CWP’s] quantitative information...will require tremendous resources” and that “[t]he scope and magnitude of the desired analyses is unprecedented in California water planning” (Workplan Section 3.66). While the CWEMF appreciates the desire of the CWP staff and Workgroup to develop all-encompassing analytical tools, the CWEMF believes that the schedule is overly ambitious, especially considering the state’s fiscal problems. The CWEMF suggests dividing the work along two parallel time tracks (near-term and long-term), prioritizing the work and providing reasonable timelines. Given the state’s fiscal problems, the CWEMF suggests that the CWP staff and Workgroup do the following:

- develop an alternative near-term schedule assuming that significant funding resources will not be available; and
- develop a long-term (5- to 10-year) schedule and workplan over the next 6 to 12 months assuming that the significant funding resources will become available. Development of the long-term schedule and workplan will require significant stakeholder input to ensure that the process is relevant as well as politically and financially credible. The CWEMF CWP Modeling Committee would like to take an active role in this process.

8. Funding Resources—Sufficient resources are critical to the success of the CWP’s analytical tools work. The CWP staff and Workgroup should solicit additional funding resources to support both near-term and long-term modeling efforts. Potential sources of funding include CALFED, foundations and CWP stakeholders.

Thank you again for conducting the CWP Analytical Tools Workshop and providing the CWEMF with an opportunity to comment on the Workplan. The CWEMF looks forward to exploring opportunities for collaboration with your staff and the Workgroup. If you have any questions, please contact Richard Satkowki at (916) 607-0435 or cwemf@cwemf.org.

Sincerely,

SIGNED BY NIGEL QUINN

Nigel Quinn, Convener
California Water and Environmental Modeling Forum

Enclosures: (1) Information about the CWEMF
(2) References

cc: CWEMF Steering Committee

Enclosure 1

Information about the California Water and Environmental Modeling Forum www.cwemf.org

The California Water and Environmental Modeling Forum is a non-profit, non-partisan organization whose mission is to increase the usefulness of models for analyzing California's water-related problems. The CWEMF, which was formed in 1994, carries out this mission by:

- Providing a consensus-building atmosphere on water-related issues;
- Maintaining a modeling clearinghouse that provides an open forum for the exchange, improvement, and pooling of models, modeling information, and professional resources;
- Assisting in mediating technical disputes involving physical, chemical, biological, and economic modeling;
- Conducting impartial peer reviews of models in order to document strengths and weaknesses, suggest improvements, and identify appropriate applications;
- Seeking input from California water stakeholders and decision makers about their modeling needs; and
- Providing educational opportunities through technical conferences and workshops.

CWEMF members include engineers, hydrologists, biologists and economists from various organizations that are involved with California water issues. Activities of the CWEMF are guided by a steering committee composed of five officers elected by the membership, representatives from 11 designated federal, state, and local governmental water organizations in California, and up to 15 members chosen by the membership to represent universities, environmental organizations, private consultants, water user agencies, and the general public. The 2003 CWEMF officers and Steering Committee organizations and members are as follows:

Officers

Convener: Nigel Quinn (Lawrence Berkeley National Lab., U.S. Bureau of Reclamation)

Vice-Convener: K.T. Shum (East Bay Municipal Utility District)

Secretary: George Nichol (California State Water Resources Control Board)

Treasurer: Lisa Holm (Contra Costa Water District)

Past-Convener: Rob Tull (CH2M Hill)

Steering Committee

State Government Organizations

CA Department of Fish and Game

CA Department of Water Resources

CA State Water Resources Control Board

Federal Government Organizations

National Marine Fisheries Service
U.S. Bureau of Reclamation
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
U.S. Geological Survey

Other Chartered Members

Contra Costa Water District
Metropolitan Water District of Southern California
San Francisco Estuary Institute

Universities/Educational Organizations

Jay Lund (UC Davis)
Wim Kimmerer (San Francisco State University)
Nigel Quinn (Lawrence Berkeley National Laboratory, U.S. Bureau of Reclamation)

Environmental Organizations

Spreck Rosekrans (Environmental Defense)
Peter Vorster (The Bay Institute)
John Williams (Environmental Consultant)

Private Consultants

Peter Baker (Stillwater Sciences)
Walter Bourez (Murray, Burns & Kienlen)
Mike Deas (Watercourse Engineering)
Gordon Thrupp (Papadopoulos & Associates)
Rob Tull (CH2M Hill)

Water User Agencies

Terry Erlewine (State Water Contractors)
K.T. Shum (East Bay Municipal Utility District)
Tom Boardman (San Luis and Delta Mendota Water Agency)

General Public/Government Employees

Hubert Morel-Seytoux (Hydroprose)

Enclosure 2

References

CALFED Bay-Delta Program (CALFED, 2000), "Comprehensive Monitoring, Assessment and Research Program" (CMARP), July 2000.

CALFED Bay-Delta Program (CALFED, 2002), "Evaluating and Comparing Proposed Water Management Actions" Draft Report, Appendix A, Model Descriptions February 2002 (located on the CALFED web site at <http://calwater.ca.gov/Programs/WaterManagement/WaterManagement.shtml>).

California Water and Environmental Modeling Forum (CWEMF, July 2003), "Proposal for Funding from the Bay-Delta Science Consortium for the Formation and Facilitation of Two California Water and Environmental Model User Groups: IGSM2 and CALSIM II," July 21, 2003.

California Water and Environmental Modeling Forum (CWEMF, October 2003), CWEMF web site at www.cwemf.org, October 3, 2003.

California Water and Environmental Modeling Forum (formerly the Bay-Delta Modeling Forum) (CWEMF, 2000), "Protocols for Water and Environmental Modeling," January 21, 2000.

Lund, Jay R., Richard E. Howitt, and Marion W. Jenkins (Lund, Howitt and Jenkins, 2003), "U.C. Davis Statewide Economic-Engineering Water Model – CALVIN," October 3, 2003 (located on the U.C. Davis web site at <http://cee.engr.ucdavis.edu/faculty/lund/CALVIN>).

Lund, Jay R. and Richard N. Palmer (Lund and Palmer, 1998), "Water Resource System Modeling for Conflict Resolution," Water Resources Update, University Council on Water Resources, pp. 10-15, 1998.

U.S. Bureau of Reclamation (USBR, 1994), "Central Valley Project Improvement Act Programmatic Environmental Impact Statement, Phase II, Analytical Tools Report," April 1, 1994.